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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|------------------------------|------------------|
| 10/669,220 | 09/24/2003 | Yue Liu | H0001589-D1 (13358.6USD1) | 2165 |
| 22913 | 7590 | 08/03/2005 | EXAMINER | |
| WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER & SEELEY) 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111 | | | VANNUCCI, JAMES | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2828 | |

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

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|------------------------------|--------------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/669,220 | Applicant(s) LIU ET AL. | |
| | Examiner Jim Vannucci | Art Unit 2828 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-23 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 9-24-03.
 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) ☐ Notice of Informal Patent Application (PTO-152)
 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 10, 13-14, 20 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Hesselink et al.(6,807,131).

Claims 1 and 13, figures 1 and 5 disclose a device with a top surface(18), a bottom surface(20), a through wafer via(44) extending from the top surface to the bottom surface, an optoelectronic structure(28), an ion implanted isolation moat(12; and col. 11, lines 28-30), where the optoelectronic structure and the through wafer via are enclosed within the isolation moat.

Claims 2-3 and 14, the disclosed optoelectronic structure is a vertical cavity surface emitting laser(col. 4, line 7).

Claims 10 and 22, Hesselink discloses an additional area of ion implantation positioned underneath the isolation moat(col. 3, lines 22-25).

Claim 20, forming the through wafer via by reactive ion etching is disclosed(col. 16, lines 6-9).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4-9, 11-12, 15-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hesselink in view of Wasserbauer et al.(6,830,940).

Claims 4 and 15, Hesselink discloses an anode(42) positioned on the top surface of the device and a connection pad(46) positioned on the bottom surface of the device.

Hesselink does not disclose connecting two anodes.

Figure 12 of Wasserbauer discloses using vias to connect different anodes for an improved connection to the anodes(abstract).

Claims 5 and 16, the anodes disclosed in figure 12 of Wasserbauer are electrically connected through a through wafer via.

Claims 6 and 17, the electrical connection through the through wafer via disclosed in Hesselink is accomplished by the use of a conductive material(col. 9, line 46).

Claims 7-8 and 18, Hesselink discloses depositing conductive metal(col. 16, line 13) on the inner walls of the through wafer via.

Claims 9 and 19, the conductive metal disclosed in Hesselink can be gold which is a well known conductor in the art.

Claims 11 and 23, hydrogen ion implantation is a well known type of ion implantation and can be used in the device disclosed in Hesselink.

Claim 12, Hesselink discloses a vertical cavity surface emitting laser, a through wafer via extending from an anode on the top surface to a conductor on the bottom surface with inner walls having an electrically conductive material deposited thereon, an ion implanted isolation moat positioned to enclose the vertical cavity surface emitting laser and the through wafer via, and a moat ion implantation region positioned below said isolation moat.

Wasserbauer discloses at least two anodes connected by a via.

Claim 21, Hesselink discloses the use of reactive ion etching and the disclosed isolation moat could be formed by such a process.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a via to connect to two anodes as disclosed in Wasserbauer in place of or in addition to using the via to connect to a pad as disclosed in Hesselink for an improved connection between anodes as disclosed in Wasserbauer.

Double Patenting

3. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in

scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.


4. Claims 1-12 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-12 of prior U.S. Patent No. 6,724,798. This is a double patenting rejection.

Correspondence

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Jim Vannucci whose phone number is (571) 272-1820.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center whose telephone number is (703) 308-0956.

Papers related to Technology Center 2800 applications only may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center Fax Center number is (571) 273-8300.


James Vannucci